EEE BRANCH REVIEW

DATE: IN 7/23 OUT 8/1/75 IN OUT	IN OFF
FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY	EFFICACY
TILE OR REG. NO. 270-RRE	建复压纸 自身
PENITION OR EXP. PERMIT NO. N/A	
Date DIV. RECEIVED 6/16/75	
DATE OF SUBMISSION 6/9/75	
DATE SUBMISSION ACCEPTED	
PRODUCT(S): I, D, H, F, N, R, S Pheromone (Insect	Sex Attractant)
To the two two	
PRODUCT NAME(S) Farnam Muscalure (Technical Tricosene)	
COMPANY NAME Farnam Companies, Inc.	
SUBMISSION PURPOSE Registration of Technical Material	
CHESTICAL & FORMULATION (Muscalure) Z-9- Tricosene 96.0%	
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FISH & WILDLIFE

100.0 Pesticidal Use

100.1..2

- FOR MANUFACTURING USE ONLY -

This material is for use only in the manufacture of pesticides. The purchaser must obtain Environmental Protection Agency registration on the formulated product proof to shipment of such product.

Active Ingredients: Z-9-Tricosene.....96.0%

Inert Ingredients:..... 4.0%

100.3 Packaged in 1 gallon containers.

101.0 Chemical & Physical Properties

101.1 Z-9-Tricosene

197.2 Muscamone (Muscalure)

103.0 <u>Toxicological Properties</u>

103.1.1 Mammal

ORGANISM	Test Type	Test Results	Test Material
Rats 684 49	Acute Oral	>23,070 mg/kg	Muscalure(?% a.i.)
Rabbits र्रंड ६६६	Acute Dermal	* >2,025 mg/kg	Muscalure(?% a.i.)
Rabbits	Eye & Skin Irritation	Not an irritant to eye & skin	Muscalure(?% a.i.)
Rats	Acute Aerosol Inhalation	$LC_{50} = >26.6 \text{ mg/1}$	Muscalure(?% a.i.)

103.1.2 Bird

(1) Mallard Duck (8-Day Dietary): LC₅₀ = >10,000 ppm using Muscalure(?% a.i.)

(2) Bobwhite Quail (8-Day Dietary): LC50 = >10,000 ppm using Muscalure (2% a.i.)

103.1.3 Fish

*(1) Rainbow Trout (Static BioAssay):

Results(LC50)(95% Confidence Limits)	Test Material
24 Hr LC ₅₀ = 100(77.9-129) ppm 48 Hr LC ₅₀ = 92.8(70.7-122) ppm 96 Hr LC ₅₀ = 36.5(33.1-40.3) ppm No effect level = 28 ppm	Fly Bait(2% a.i.) Fly Bait(2% a.i.) Fly Bait(2% a.i.)

**(2) Rainbow Trout (Static BioAssay):

-		Result	ts	(LC50)		Test	Mater	'ia	1	
24	Hr	LC50	***	>1000	ppm	Musca				
48	Hr	LC50	==	>1000	ppm	Musca	Ture (7%	a.i.	Ś
96	Hr	LC ₅₀	==	>1000	ppm	Musca				

*(3) Bluegill Sunfish (Static BioAssay):

Results (LC50) (95% Confid	ence Limits)	Test Material
24-Hr LC50 = 353(282-441)	nnm	Fly Bait(?% a.i.)
$48 \text{ Hr LU}_{50} = 220(178-273)$	ppm	Fly Bait(7% a.i.)
48 ⁻ Hr LC ₅₀ = 220(178-273) 96-Hr LC ₅₀ = 109(89-135) No effect level = 65 ppm	ppm	Fly Bait(?% a.i.) Fly Bait(?% a.i.)
no errect level = 65 ppm		

**(4) Bluegill Sunfish (Static BioAssay):

Results (LC ₅₀)	Test Material
24-Hr LC50 = >1000 ppm	Muscalure(?% a.i.)
48 Hr LC ₅₀ = >1000 ppm	Muscalure(?% a.i.)
96-Hr LC50 = >1000 ppm	Muscalure(?% a.i.)

*Diluent was not indicated; also, did not indicate whether vessels were aerated or not.

**Diluent was acetone; vessels were not aerated. Compound (Muscalure) appeared to be insoluble in water. A film, which was proportional to the concentration, was observed in all test vessels.

103.3 Chronic Toxicity

(1) Bobwhite Quail (One-Generation Reproduction Study):

Bobwhite quail (16 months old) were fed 2 and 20 ppm of Muscalure

(2% a.i.) in the diet for 21 weeks. No Adverse Effects were noted at either level on the reproductive success of the birds.

(2) Mallard Duck (One-Generation Reproduction Study):

Mallard duck (16 months old) were fed 2 and 20 ppm of Muscalure (?% a.i.) in the diet for 21 weeks. No Adverse Effects on reproduction nor any toxicity nor any behavioral abnormalities were noted at the 2 ppm level. No mortality occurred either. At the 20 ppm level there were no symptoms of toxicity, no behavioral abnormalities, and no mortality. However, 20 ppm caused a significant reduction in the number of hatchlings (42% hatched vs. 61% for the control birds), and, consequently, a significant reduction in the number of 14-day-old survivors per hen (72.59% survived vs. ~100% for the control birds). Between day 21 of incubation (the last interval at which the eggs were candled) and day 26 of incubation (when normal hatching should occur), a significant number of developing embryos died. These deaths caused the above two significant reductions.

104.0 Hazard Assessment

104.1 Discussion

- 104,1.1,.2 The toxicity data appears adequate to support the proposed use. However, to be fully acceptable, the complete chemical composition of the FLY BAIT and MUSCALURE used in the avain and fish toxicity tests must be submitted.
- 104.1.3 The toxicity data submitted is acceptable to support a manufacturing use. The data indicates a low order of acute toxicity to mammals and birds. However, chronically, this material causes reproductive impairment in mallard ducks at 20 ppm.

With this in mind, it should be noted that the likelihood of exposure of non-target organisms to this material would be primarily an aquatic one--i.e., through the discharge of wastes and effluent and/or by transportation spillage. Appropriate label cautions should be adequate to handle this use.

105.0 Conclusions

105.1 The avain and fish toxicity data submitted is adequate to support the proposed use. However, to be fully acceptable, the complete chemical composition of the FLY BAIT and MUSCALURE used in the

avain and fish studies must be submitted.

105.2 Add the following caution to the product label:

"Do not contaminate water by cleaning of equipment or disposal of wastes."

Norman J. Cook
Norman J. Cook
Fish & Wildlife Section
Efficacy & Ecological Effects Branch

8/1/75

		AM COMPANIE		Req No 270 - RRE Exp permit No N/A	, Li
Access ORGANISM	ION NO TEST	LD ₅₇₀	LC.50	Pertition NON/A Submission date 6/9 LC50 Aquatic T	hs
RAINBOW TROUT		No EFFECT (FIRE	Dietary = 28 April	24 hr 48 hr 96 hr MA	TERIAL
BUEGIU SONFISH	BYOASSAY STATIC BYOASSAY	95% C No EFFECT CEL	on clence limit	106 ppm 92,8 ppm 36.5 ppm FLY = (77.9-129) 70.7-122 (33.1-40.8) ? %	a. L
RAMBOW ROUT	STATIC BIOASSAY			1996	6 a. i.
♥ BLUEGIU SUNFISH	STIFT IC BIOASSAY			>1000 >1000 >1000 Muscar ppm ppm ppm (2%a	.i.)
# Diluents not		did not indic	(b) S	PPM DOWN MOSAN	 (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)
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MALARO DUCK	used as die the world nuld amale 8-DAY DIETHRY \$TUDY	vients; vassela A film a the test was	were not one with the was one	ottimal to the concentrati	im)
Machible Was obse MALLARY OLD BOBULHTE QUALL (14-DAY OLD)	Ned male 8-DAY DIETARY STUDY 8-DAY DIETARY	vents; vesselves. A film w the test was	>10,000 ppm	DIELDAIN 2650= 3/20m MUSCAL DIELDAIN 2650= 3/20m MUSCAL DIELDAIN 2650= 3/20m MUSCAL	ing uee 1)
Was obse MANARD DUCK (14-DAY OLD) BOBWHTE OUGH	NVED ANGLE 8-DAY DIETHRY \$TUDY 8-DAY DIETHRY STUDY	A film	>10,000 ppm	DIELDRIN LGO = 130 pm MUSCACI DIELDRIN LGO = 130 pm MUSCACI 95% con lin = (90-151) (? % C DIELDRIN LGO = 31 ppm MUSCACI 95% con lin = (24-39) (? % C	ing ure i.i.) ure a.i.)
WAS obse MALARD DUCK (14-DAY OLD) BOBWHITE QUALL (14-DAY OLD) RATS BOLL	NVE ACUTE	A film white the test was	>10,000 ppm	DIECDEN 2(50 = 120 pm Muscaci 93% conflim = (90-151) (? % C DIELDAIN 2(50 = 31 ppm Muscaci 95% conflim = (24-39) (? % C Muscaci (? % a.,	in, URE 1. i.) URE 2. i.) RE
MALIARD DUCK (14-DAY OLD) BOBWINTE QUALL (14-DAY OLD) RATS BOTTS RABBITS RABBITS RABBITS	NVE ACUTE	Afilm whitest was	>10,000 ppm	DIELDAIN L(SUE 31 ppm) MUSCALI 95% con lim=(24-39) (?% a., MUSCALIA MUSCA	ing URE 1.2.) URE 2.11,) RE 1.)

		sene - 96% a.i
<u>Litetion</u> 7	- MKNAM COMPANIES, INC.	Reg. NO 270- RRE
		Exp permit N/A
		Rtition - N/A
Accession No.		Submission 6/9/75 DATE
ORGANISM DOSE		
	54mptom/EFFECT	Pa) were fort a c
BODWHITE QUALL O, SI	Quail (14 months of birds.	ld) were fect 2 & 20 ppm Musc Acid
ne-generation 20 ppm Reproduction Weekstudy	were noted on the	reproductive success /3 %
MALLARD DUK 0, 2,	of burbo.	reproductive success (?% a:
- Teneration Keninguith	Hallara ducks (14 m 2 5, 20 ppm in duck	norths old werked Muserunk
(31 WE study) 30 ppm	(D) & mm so well	for 31 wks Mesults.
	(0) Sppm eaused no	adverse yfects. C? % an
	of Rutchings and	ignificant reduction of numb
		The state of the s
	Clast interval at w	tween day 210 incubation
	day 26 of mailsatum	Current and Ant a
	should occur) a	Curen normal hatching
	embryos died , thus	significant number of causing the reduced number
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		7/30/75)
M	ISCAMONE : Z-9- fricosene		-
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	(a) straight at :	$\frac{n}{n}$, or	93
	(2) straight chain al	phate hydrocartin	
Aum R			
	PISODUCTIVE STUDIES		
(1)	Bobwhite Quail: N.E.	at 2 & 20 ppm	
્ય	MANUARD DUK! Adverse	effects at 2 & 200	
		of the second	
	MOSCALURE		
and distribution and plants are sufficient and plants and and a sufficient		MUSCAMONE	
	Normal Hatchingo		
CONTRUL	lel %	Donnal Hatcheryo	
Z ppm	The substitute of the substitu	68%	
	0.00	480/ +	
20 Ppm		> 510/#	
	14-DAY-OLD SURUWORS HEN	14- DAY-OLD SURVIVORS/ HEN	
CONTROL	30.8 (100%)	15.2 (100%)	
Z ppm	20.0 (96%)	7.7 (5%)*	
20 ppm	16.1 (730%)	>6.7 (44%)s	
		1 (47/6)	
A company of the second	Statistically significant		===
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